
Hydrogel design of experiments methodology to optimize hydrogel for iPSC-NPC culture

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Funding Grants: Development of a Hydrogel Matrix for Stem Cell Growth and Neural Repair after Stroke

Public Summary:

Stroke is the leading cause of adult disability. There are no medical therapies that promote recovery in stroke. Stem cell transplantation has shown promise in promoting recovery in stroke. Stem cell treatments have focused on transplanting immature neurons (neural precursor cells, NPCs) that have been generated from embryonic stem cell or induced pluripotent stem cell (iPS) sources. A problem with stem cell therapies in stroke is that most of the transplanted cells die. This paper reviews methods to test for survival and differentiation of transplanted NPCs in stroke and other brain or spinal cord injury models. The review specifically focuses on a bioengineering approach to enhancing stem cell survival and engraftment after stroke: using biomaterial hydrogels that are injected with the stem cells and produce a pro-survival matrix for these cells.

Scientific Abstract:

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